AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listing, of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended) A method of measuring the accumulation of anti-tumor drugs by solid tumors comprising,

administering an anti-tumor drug labeled with a positron-emitter to a patient having a solid tumor, and

imaging at least part of the patient using PET,

wherein said anti-tumor drug is an insoluble taxane.

Claim 2 (Original) The method according to claim 1, wherein the solid tumor is selected from the group consisting of breast, lung, ovarian, gastrointestinal, prostate, sarcoma and head and neck tumors.

Claim 3 (Currently Amended) The method of claim 1, wherein the labeled drug is at least one drug selected from the group consisting of ^{11}C-paclitaxel and [[,]] ^{11}C-docetaxel, and a taxane that has been radiolabeled.

Claim 4 (Currently Amended) A method of determining the efficacy of an anti-tumor drug for treating solid tumors comprising:

administering an anti-tumor drug labeled with a positron-emitter to a patient having a solid tumor; and

imaging at least part of the patient by PET to measure accumulation of the labeled anti-tumor drug,

wherein said anti-tumor drug is an insoluble taxane.

Claim 5 (Currently Amended) The method according to claim 4, wherein the labeled anti-tumor drug is administered prior to a course of treatment of the ~~patent~~ patient.

Claim 6 (Original) The method of claim 4, wherein the labeled anti-tumor drug is administered during the course of treatment of the ~~patent~~ patient.

Claim 7 (Currently Amended) The method of claim 4, wherein the labeled drug is at least one drug selected from the group consisting of ^{11}C-paclitaxel and [[,]] ^{11}C-docetaxel~~, and a taxane that has been radiolabeled~~.

Claim 8 (Currently Amended) A method of measuring the effectiveness of modulators of cellular accumulation mechanisms in tumors comprising:

administering an anti-tumor drug labeled with a positron-emitter to a patient;

administering a modulator to the patient, and

imaging at least part of the patient by PET to measure accumulation of the labeled anti-tumor drug,

wherein said anti-tumor drug is an insoluble taxane.

Claim 9 (Original) The method of claim 8, wherein the accumulation of labeled anti-tumor drug is measured before and after administering the modulator to the patient and the levels of anti-tumor drug accumulation before and after administering the modulator are compared.

Claim 10 (Original) The method of claim 8, wherein modulator affects an efflux mechanism.

Claim 11 (Original) The method of claim 8, wherein modulator affects an influx mechanism.

Claim 12 (Currently Amended) The method of claim 8, wherein the labeled drug is at least one drug selected from the group consisting of ^{11}C-paclitaxel and [[,]] ^{11}C-docetaxel~~, and a taxane that has been radiolabeled~~.

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Claim 13 (Currently Amended) A method for measuring the effectiveness of a combination of anti-tumor drugs comprising:

administering more than one anti-tumor drug to a patient having a solid tumor, wherein at least one of said anti-tumor drugs is labeled with a positron-emitter, and

imaging at least part of the patient by PET to measure accumulation of the labeled anti-tumor drug,

wherein said labeled anti-tumor drug is an insoluble taxane.

Claim 14 (Original) The method of claim 13, wherein two anti-tumor drugs are administered to the patient.

Claim 15 (Original) The method of claim 13, wherein one of said labeled anti-tumor drugs is labeled with a positron-emitter.

Claim 16 (Original) The method of claim 13, wherein two of said anti-tumor drugs are each labeled with a positron-emitter.

Claim 17 (Original) The method claim 13, wherein a first anti-tumor drug and a second anti-tumor drug are administered simultaneously.

Claim 18 (Original) The method claim 13, wherein a first anti-tumor drug and a second anti-tumor drug are administered sequentially.

Claim 19 (Currently Amended) The method of claim 13, wherein the labeled drug is at least one drug selected from the group consisting of ^{11}C-paclitaxel and [[,]] ^{11}C-docetaxel, [[,]]and a taxane that has been radiolabeled.

Claim 20 (Currently Amended) A compound having the formula:
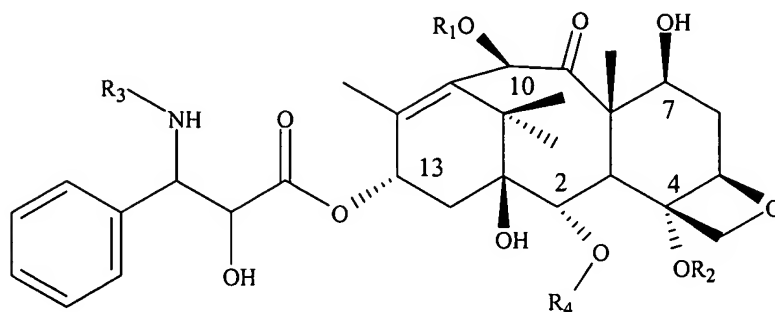
wherein:

R_1 is selected from the group consisting of H, acetate and ^{11}C-acetate;

R_2 is selected from the group of acetate and ^{11}C-acetate;

R_3 is selected from the group consisting of benzoyl, ^{11}C-benzoyl, $-CO_2C(CH_3)_3$ and $-^{11}CO_2C(CH_3)_3$; and

R_4 selected from the group consisting of benzoyl, ^{11}C-benzoyl; and

wherein the compound contains at least one atom of ^{11}C.

Claim 21 (Original) A compound according to claim 20, wherein R_1 is ^{11}C-acetate, R_2 is acetate, R_3 is benzoyl and R_4 is benzoyl.

Claim 22 (Original) A compound according to claim 20, wherein R_1 is acetate, R_2 is ^{11}C-acetate and R_3 is benzoyl and R_4 is benzoyl.

Claim 23 (Original) A compound according to claim 20, wherein R_1 and R_2 are acetate and R_3 is ^{11}C- benzoyl and R_4 is benzoyl.

Claim 24 (Original) A compound according to claim 20, wherein R_1 and R_2 are acetate, R_3 is benzoyl and R_4 is ^{11}C-benzoyl

Claim 25 (Original) A compound according to claim 20, wherein R_1 is H, R_2 is acetate, R_3 is $-^{11}CO_2C(CH_3)_3$. and R_4 is benzoyl.

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Claim 26 (Original) A compound according to claim 20, wherein R_1 is H, R_2 is ^{11}C-acetate, R_3 is $CO_2C(CH_3)_3$ and R_4 is benzoyl.

Claim 27 (Original) A compound according to claim 20, wherein R_1 is H, R_2 is acetate, R_3 is - $CO_2C(CH_3)_3$ and R_4 is ^{11}C-benzoyl.

Claim 28 (Original) A method of synthesizing the compound according to claim 20, comprising the steps of:

reacting 10-deacetylpaclitaxel with a chlorotrialkylsilane to yield a protected deacetylpaclitaxel;

reacting the protected deacetylpaclitaxel with ^{11}C-acetyl chloride to yield a radio-labeled silyl protected deacetylpaclitaxel;

removing the protecting groups, and

isolating ^{11}C-paclitaxel.

Claim 29 (Original) A method of synthesizing the compound according to claim 20, comprising the steps of:

reacting paclitaxel primary amine with ^{11}C-benzoyl chloride, and

isolating ^{11}C-paclitaxel.

Claim 30 (Original) A method of synthesizing the compound according to claim 20, comprising the steps of:

reacting docetexal primary amine with ^{11}C-di-tert-butyl dicarbonate, and

isolating ^{11}C-docetaxel.

Claim 31 (Original) A method of synthesizing the compound according to claim 20, comprising the steps of:

reacting paclitaxel primary amine with ^{11}C-di-tert-butyl dicarbonate to give ^{11}C-10-acetyldocetaxel; and

reacting the ^{11}C -10-acetyldocetaxel with hydrogen peroxide to give ^{11}C-docetaxel.

Claims 32-40 (Canceled)

Claim 41 (Currently Amended) A method of measuring the accumulation of anti-tumor drugs by solid tumors comprising,

administering an anti-tumor drug labeled with a positron-emitter to a patient having a solid tumor, and

imaging at least part of the patient using PET;

wherein said anti-tumor drug labeled with a positron-emitter comprises an insoluble taxane ~~an anti-tumor drug~~ having a naturally occurring atom replaced with a radioisotope of the same element.

Claim 42 (Currently Amended) <u>A method of measuring the accumulation of anti-tumor drugs by solid tumors comprising,</u>

<u>administering an anti-tumor drug labeled with a positron-emitter to a patient having a solid tumor, and</u>

<u>imaging at least part of the patient using PET;</u>

~~The method of claim 41,~~ wherein the anti-tumor drug ~~labeled with a positron-emitter~~ comprises a compound having the formula:
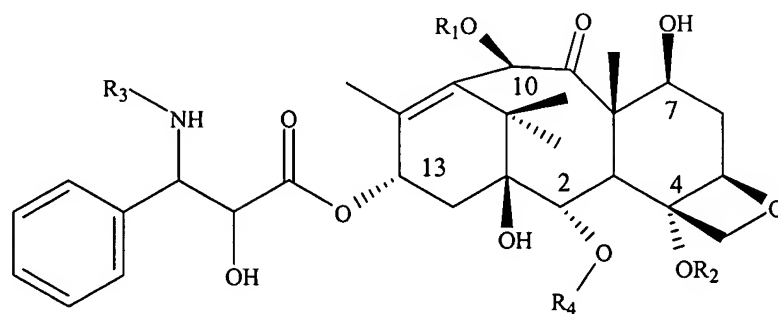
wherein:

R_1 is selected from the group consisting of H and acetate;

R_2 is acetate;

R_3 is selected from the group consisting of benzoyl and $-CO_2C(CH_3)_3$; and

R_4 is benzoyl,

wherein the compound contains at least one atom of ^{11}C.

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Claim 43 (Currently Amended) The method of claim 41 42, wherein R_1 is ^{11}C-acetate, R_2 is acetate, R_3 is benzoyl and R_4 is benzoyl.

Claim 44 (Currently Amended) The method of claim 41 42, wherein R_1 is acetate, R_2 is ^{11}C-acetate and R_3 is benzoyl and R_4 is benzoyl.

Claim 45 (Currently Amended) The method of claim 41 42, wherein R_1 and R_2 are acetate and R_3 is ^{11}C- benzoyl and R_4 is benzoyl.

Claim 46 (Currently Amended) The method of claim 41 42, wherein R_1 and R_2 are acetate, R_3 is benzoyl and R_4 is ^{11}C-benzoyl.

Claim 47 (Currently Amended) The method of claim 41 42, wherein R_1 is H, R_2 is acetate, R_3 is $-^{11}CO_2C(CH_3)_3$. and R_4 is benzoyl.

Claim 48 (Currently Amended) The method of claim 41 42, wherein R_1 is H, R_2 is ^{11}C-acetate, R_3 is $CO_2C(CH_3)_3$ and R_4 is benzoyl. .

Claim 49 (Currently Amended) The method of claim 41 42, wherein R_1 is H, R_2 is acetate, R_3 is $- CO_2C(CH_3)_3$ and R_4 is ^{11}C-benzoyl.